SECTION 9: ORAL CARE

Concern	Care/Test	Frequency
Oral Care	♦ Perform oral health screening	At diagnosis, then each focused visit
	♦ Advise dental exam by general dentist or periodontal specialist	At diagnosis, then every 6 months (if dentate) and every 12 months (if edentate)

People with diabetes are more susceptible to oral infections, such as periodontal disease, with even higher susceptibility occurring during periods of poor glycemic control or prolonged periods of hyperglycemia. The presence of active periodontitis can, in turn, impair glycemic control and increase the risk of developing systemic complications of diabetes, particularly cardiovascular disease and stroke. Because of their increased risk of periodontitis, pregnant women with diabetes have an increased risk of pre-term delivery and infants may have low birth weight at delivery. The negative outcomes of periodontitis can be avoided through appropriate screening and timely referral and treatment.

Other common, yet avoidable, oral health problems associated with diabetes include tooth decay, fungal infections, inflammatory mucosal disease, taste impairment, and salivary gland dysfunction. Xerostomia (drying of the mouth) caused by salivary gland dysfunction may lead to burning tongue or mouth, as well as rampant caries.

It is important that people with diabetes receive routine oral screenings and dental exams. Because dental visits are an essential, but often overlooked, component of good diabetes care, Healthy People 2010 includes a national objective calling for at least 75% of people with diabetes to regularly have at least one dental visit annually by the year 2010.

Oral Screening

An oral screening should be performed at diagnosis and at each diabetes-focused visit occurring thereafter. Any positive findings should initiate referral to a dentist or dental specialist to ensure early and prompt diagnosis and treatment. The screening includes an evaluation of the oral cavity for signs of redness, bleeding, halitosis, accumulation of debris around the teeth, gingival recession with exposed root surfaces, separation of teeth, and tooth mobility. People without teeth (edentate) should also receive an evaluation for signs of tissue inflammation or irregularities, white or red lesions, and any change in the fit of their dentures. Physicians, nurses, ancillary healthcare professionals, and caregivers can all perform this evaluation and must reinforce the importance of oral and dental care.

Dental Exam

A dental exam should be performed at diagnosis, every six months thereafter for dentate people, every 12 months thereafter for edentate people, and more frequently if an oral screening indicates signs of new or persistent problems. Ongoing communication between the diabetes team and the dentist is essential to ensure optimal glycemic control. The following may be a part of a standard dental care visit:

- Oral and dental examinations, including a complete periodontal examination.
- Non-surgical and/or surgical periodontal therapy with adjunctive antibiotics.

- Rigorous oral hygiene care, including self-care instruction.
- Frequent follow-up to ensure that disease is controlled.

Referral to a Dentist/Peridontal Specialist and Coordination of Care

Dentists and periodontal specialists are integral members of the diabetes care team, providing essential care and services. Ongoing communication between the diabetes team and the dentist or periodontal specialist is crucial to ensuring optimal glycemic control and good diabetes management.

Essential Patient Education for Oral Health

It is important for people with diabetes to understand the risks associated with poor dental and oral care and to receive prompt referrals and treatment. Educational strategies should take into consideration special educational and cultural needs and literacy level/skill, while respecting the individual's willingness to change behavior. Education may include, but is not limited to, the following:

- Encourage people to inform their dentist or dental specialist of their current status of blood sugar control, pertinent past or present medical information, and any changes in medical history or medications (both prescription and over-the-counter).
- Discuss the increased risk for preventable, but potentially life-threatening, oral infections (i.e. periodontal disease).
- Discuss strategies for preventing oral infections, such as controlling blood sugar levels and cholesterol, routine oral hygiene, and regular dental care.
- Discuss the correlation between the duration of diabetes and the increased risk of periodontal disease for insulin users.
- Discuss the increased likelihood for non-insulin-dependent people with diabetes to have periodontal attachment loss (2.8 times more likely) and periodontal bone loss (3.4 times more likely), compared to people without diabetes.
- Discuss the importance of early intervention and treatment options.
- Explain that periodontal disease is often asymptomatic.
- Explain that periodontal disease can lead to tooth loss, can decrease the effectiveness of medications used to treat diabetes, and increase the risk of diabetes complications, such as cardiovascular disease, vascular disease, and stroke.
- Explain that, in women, an increased risk of periodontitis is associated with a pre-term and/or low birth weight delivery.

Helpful Tools Included in This Section

- Interdisciplinary Diabetes Dental Referral Form
- Diabetes Oral Health Screening Guide

Additional Resource

1) Working Together to Manage Diabetes: A Guide for Pharmacists, Podiatrists, Optometrists, and Dental Professionals, developed by the National Diabetes Education Program. Web site (pdf file) located at: http://www.ndep.nih.gov/diabetes/pubs/PPODprimer_color.pdf.

Oral Care – Question and Answer

Q: Are people with diabetes more susceptible to the development of severe periodontitis?

A: Scientific evidence collectively supports a relationship between the two diseases, especially in people with poorly controlled diabetes, hyperglycemia, or hyperlipidemia. People with diabetes have increased susceptibility to oral infections, including periodontitis. Periodontitis occurs with greater frequency and increased severity when other systemic complications of diabetes are more advanced. This increased susceptibility does not correlate with dental plaque or calculus levels. Among people with insulin-dependent diabetes, the risk for periodontitis positively correlates with the duration of diabetes. People with non-insulin-dependent diabetes are 2.8 times more likely to have periodontal attachment loss and 3.4 times more likely to have periodontal bone loss than those without diabetes. In 1993, periodontal disease was recognized by *Diabetes Care* as the sixth major complication of diabetes.

Q: Can elimination of periodontal infection improve glycemic control?

A: Infections, including advanced periodontal disease, can lead to increased insulin resistance and a decline in glycemic control. On occasion, oral infections have been documented as life threatening to people with diabetes. Research has shown that insulin requirements are reduced in some insulin-dependent subjects following periodontal therapy. In a recent prospective study of 88 non-insulin-dependent subjects with diabetes aged 18-67 years, severe periodontitis at baseline was associated with poor glycemic control, defined as an A1c of ≥ 9% at follow-up. In this same population, elimination of periodontal infection and reduction of periodontal inflammation resulted in a significantly reduced A1c level. It is recommended that a periodontal examination be performed following diagnosis for diabetes, and that subsequent treatment for periodontal disease is performed thereafter to improve glycemic control.

References

1) Ship JA. Diabetes and oral health: an overview. *J Am Dent Assoc*. 2003;134:4S-10S.
2) Amar S, Han X. The impact of periodontal infection on systemic diseases. *Med Sci Monit*. 2003;9:RA291-RA299.
3) Ryan ME, Carnu O, Kamer A. The influence of diabetes on the periodontal tissues. *J Am Dent Assoc*. 2003;134:34S-40S.
4) Tsai C, Hayes C, Taylor GW. Poorly controlled diabetes is associated with a greater prevalence of severe periodontitis. *J Evid Base Dent Pract*. 2003;3:19-21.
5) Taylor GW. The effects of periodontal treatment on diabetes. *J Am Dent Assoc*. 2003;134:41S-48S.
6) Cutler CW, Iacopino AM. Periodontal disease: links with serum lipid/triglyceride levels? Review and new data. *J Int Acad Periodontol*. 2003;5:47-51.
7) Iacopino AM. Periodontitis and diabetes interrelationships: role of inflammation. *Ann Periodontol*. 2001;6:125-137.
8) U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.
9) Iacopino AM, Cutler CW. Pathophysiological relationships between periodontitis and systemic disease: recent concepts involving serum lipids. *J Periodontol*. 2000;71:1375-1384.

10) Mealey B. Diabetes and periodontal diseases. *J Periodontol*. 1999;70:935-949. Corrected and republished in *J Periodontol*. 2000;71:664-678.
11) Taylor GW. Periodontal treatment and its effects on glycemic control: a review of the evidence. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 1999;87:311-316.
12) Cutler CW, Machen RL, Jotwani R, Iacopino AM. Heightened gingival inflammation and attachment loss in type 2 diabetics with hyperlipidemia. *J Periodontol*. 1999;70:1313-1321.
13) Grossi SG, Genco RJ. Periodontal disease and diabetes mellitus: a two-way relationship. *Ann Periodontol*. 1998;3:51-61.
14) Grossi SG, Skrepcinski FB, DeCaro T, et al. Treatment of periodontal disease in diabetics reduces glycated hemoglobin. *J Periodontol*. 1997;68:713-719.

INTERDISCIPLINARY DIABETES DENTAL REFERRAL FORM

Medical Provider: Complete this section

1) Type of diabetes: ☐ Type 1 diabetes ☐ Type 2 diabetes
2) List medications: _____
   _____
   _____
3) Recent A1c: _____ % Date: _____
4) Antibiotic pre-medication required? ☐ YES ☐ NO
5) Drug allergies: _____
   _____
6) Consulting medical provider: _____
   Address _____
   City/State _____
   Phone _____
   Fax _____

Dental Provider: Complete this section

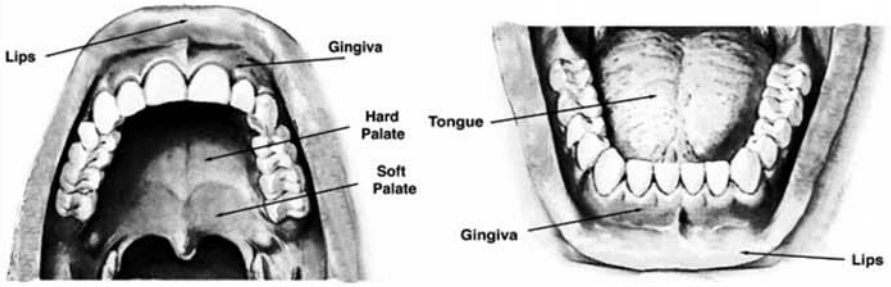
1. Date of dental visit: _____
2. Periodontal status (check):
   ☐ Gingivitis ☐ Early Periodontitis ☐ Moderate Periodontitis ☐ Advanced Periodontitis
3. Significant oral findings: _____
   _____
4. Treatment needs: _____
   _____
5. Next appointment or F/U: _____/_____/_____
6. Consulting dental care provider: _____
   Address _____
   City/State _____
   Phone _____
   Fax _____

I, _____, consent to the release and exchange of medical/dental information pertinent to my diabetes management and overall healthcare.

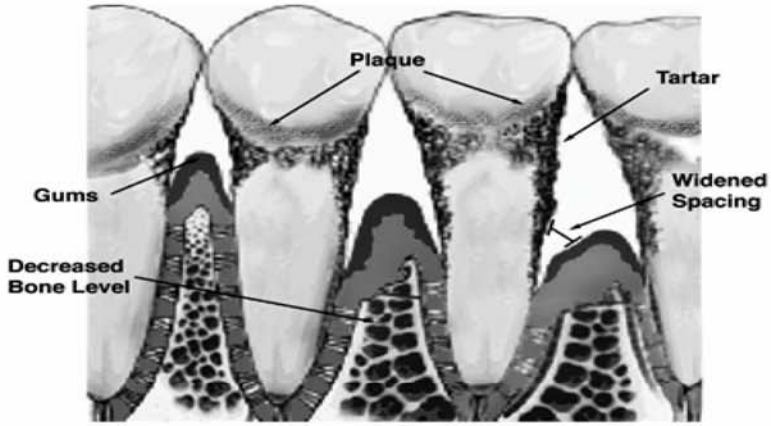
PLEASE FAX THIS FORM TO THE CONSULTING DENTAL OR MEDICAL PROVIDER.

Diabetes Oral Health Screening Guide

Please perform an oral health evaluation at least every six months. The accompanying diagrams may be helpful for understanding the evaluation criteria and the presence of periodontal disease. Assign a score based on your findings and refer to a dentist for further evaluation if score is 4 or more.



This picture represents a healthy mouth. The gums are resting firmly around the teeth and there are no exposed roots or visible debris on the teeth

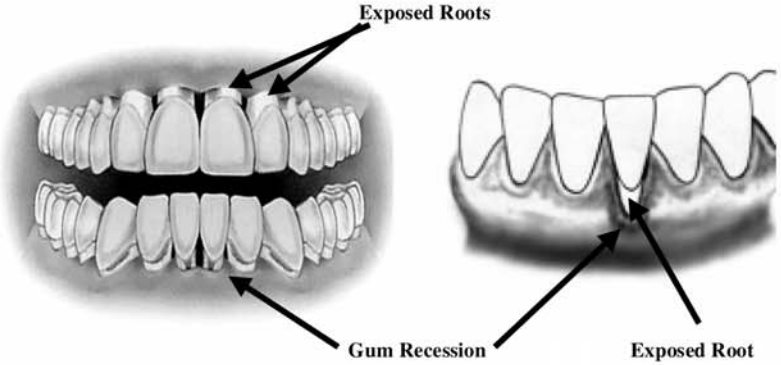


Mild **Progressive Periodontal Disease** **Severe**

Periodontitis is a chronic infectious disease that causes loss of tooth supporting bone and can lead to tooth loss.

Generalized Periodontal Disease

Localized Periodontal Disease



Diabetes Oral Health Screen

More than 6 months since last dental visit	4
Bleeding of the gums around teeth	4
Loose teeth	4
Visible debris or accumulation of hardened material around teeth	3
Exposed roots on any teeth	2
Strong odor in the mouth	1
Smoking or smokeless tobacco use	1
Total Score	

Refer for dental evaluation if total score is 4 or more